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A. David Joran
(Reg. No. 37,858)

Signature

Dkt. 0973/2D255WO

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

Applicants: BioArray Solutions LLC and Rutgers, The State University of New Jersey

International
Application Number: PCT/US98/10719 Examiner: Ponnaluri, P.

International Filing Date: 22 May 1998 Priority Date: 23 May 1997

For: COLOR-ENCODING AND IN-SITU INTERROGATION OF MATRIX-COUPLED CHEMICAL COMPOUNDS.

June 28, 1999

Commissioner of Patents & Trademarks
Box PCT
Washington, D.C. 20231

ATTN: IPEA/US

Sir:

AMENDMENT IN RESPONSE TO
28 APRIL 1999 WRITTEN OPINION

This Amendment is submitted in response to the 28 April 1999 Written Opinion issued by the International Preliminary Examining Authority (IPEA/US) in connection with the above identified PCT International Application. A response to the 28 April 1999 Written Opinion is due June 28, 1999. Accordingly, this Amendment is being timely filed.

Please amend the subject application as follows:

In the Claims:

Please replace original pages 27-48 containing original claims 1-72, with replacement pages 27-57 containing amended claims 1, 6, 7, 9, 11, 19, 20, 21, 36, 37, 42, 43, 45, 48, 52, 56, 58, 59, 60, and 72, as well as updated page and line numbers for the remaining claims, attached hereto as Exhibit A.

REMARKS

Claims 1-72 are pending in the subject International Application. Claims 1, 6, 7, 9, 11, 19, 20, 21, 36, 37, 42, 43, 45, 48, 52, 56, 58, 59, 60, and 72 have been amended herein. The amendments of the claims are made in compliance with PCT Article 6, or to correct typographical errors, merely to set forth more clearly applicants' intended invention. No claims have been added or cancelled herein. Accordingly, claims 1-72 are under examination.

Support for the amendments 1, 6, 7, 9, 11, 36, 37, 42, 43, 45, 48, 52, and 72 is found throughout the subject application, *inter alia*, in original claims 1, 6, 7, 9, 11, 36, 37, 42, 43, 45, 48, 52, and 72, respectively. The amendments set forth herein do not raise an issue of new matter. Accordingly, entry of the amendments is respectfully requested.

In view of amendments herein and the remarks below, applicants respectfully request reconsideration and withdrawal of the objections set forth in the 28 April 1999 Written Opinion.

OBJECTIONS UNDER PCT ARTICLE 33(2)

In the Written Opinion, the Examiner has objected to claims 1-72 under PCT Article 33(2) as being anticipated by Ohlmeyer *et al.* (*Complex synthetic chemical libraries indexed with molecular tags*, Proc. Natl. Acad. Sci. USA, 90 at 10922-10926 (1993)) or Still *et al.*

(U.S. Patent No. 5,565,325). The Examiner states that Ohlmeyer *et al.* teach complex synthetic chemical libraries indexed with inert chemical tags.

Applicants respectfully traverse the objection, and maintain that their invention is different from that of Ohlmeyer or Still. Because of these differences, the methods of the cited references suffer from several significant limitations which are overcome by the invention of the pending claims.

Ohlmeyer *et al.* disclose a method of identifying active compounds in a combinatorial library which is synthesized and indexed with chemical tags which must be cleaved prior to sequence analysis. After the library is created, an assay is performed to identify beads of interest ("active" compounds). Such beads of interest are physically isolated from the rest of the library; the chemical tags must then be cleaved from the bead and analyzed using Electron Capture Gas Chromatography (ECGC) to determine the sequence of the bead.

Still *et al.* similarly disclose a method for synthesis and indexing a library with cleavable tags. Among the types of identifier tags used, Still provides as a working embodiment compounds detectable by electron capture, but mentions fluorescer tags briefly. See col. 16, lines 2-10, and col. 27, line 26. However, all of the methods listed by Still *et al.* for reading the tag sequence of beads require cleavage of the tags from the beads, separation of the tags from each other (e.g. by various chromatographic procedures or electrophoresis), and then standard chemical or physical analysis to identify the tags (e.g. electron capture). See col. 27, lines 32-33 and 65-66. It is clear that Still does not provide a method which can overcome the necessity for these discrete separation and analysis steps. Still merely lists fluorescers as a specific type of tag that can be used in conjunction with a chromatographic or electrophoretic separation technique. See '325 at col. 27, lines 51-52 and 57-58.

In contrast, the method of the present invention avoids this time-consuming, labor-intensive series of steps. Applicants are able to identify compounds in a synthesized combinatorial library using a binary code based on fluorophore tags which can be read optically by analyzing the relative intensities of spectral fluorescence maxima corresponding to the respective tags attached to a particular bead. This can be done *in-situ*, without physically separating the bead of interest from others in a mixture, and without removing the tag from the bead. Moreover, the present method does not require off-bead chemical analysis for determining the tag sequence, which instead is determined by direct optical interrogation. Thus, applicants' novel use of fluorescers eliminates the need for any physical separation of the beads of interest, cleavage of tags, separation of tags from each other, and chemical analysis of tags. Ohlmeyer's and Still's methods using fluorescer tags require all of these steps.

The key difference between the prior art and the present invention is the result of applicants' insight that *in-situ* interrogation would be possible if the binary code is derived from non-superimposing, non-self-quenching fluorescers. While the Still and Ohlmeyer methods rely on differences in chromatographic retention times to permit resolution and analysis of identifier tags, the present invention cleverly applies the principle of spectral non-overlap to enable rapid optical interrogation. Applicants' method requires no physical separation of any identifier compounds.

In particular claims, it is even more evident that applicants' invention is differentiated from the prior art. For example, claims 17 and 56 of the present invention teach the additional limitation that emission intensity of a fluorophore used as a tag is distinguished by adjusting the ratio of relative quantities of each fluorophore. This limitation is absent from the disclosure of Ohlmeyer *et al* and Still *et al*. Similarly, Ohlmeyer *et al.* and Still *et al.* do not disclose use of any of the specific dyes recited in claims 19-21 and 58-60 of the present invention. Also absent from the disclosure of Ohlmeyer *et al.* and Still *et al.* is the

collection of fluorescence data from multiple solid supports using multi-spectral imaging methods as set forth in pending claims 23 and 55. Furthermore, Ohlmeyer *et al.* and Still *et al.* do not disclose the methods of spectral fluorescence data collection of applicants' claims 25 and 62, or the apparatus elements of claims 26-29 and 63-66 used in conjunction with the methods of claims 25 and 62, respectively, including, for example, formation of a static or dynamic planar array and use of a sandwich flow cell. In addition, Ohlmeyer *et al.* and Still *et al.* do not provide the apparatus of applicants' claims 36 and 72 for identifying a compound having a selected property of interest in a library of compounds, as Ohlmeyer and Still do not disclose such elements as an electrode and an electrolyte solution having an interface between them, an electric field generator, and an illuminating source for controlling bead motion in an array.

Accordingly, applicants maintain that Ohlmeyer *et al.* and Still *et al.* do not anticipate the invention of claims 1-72, and respectfully request withdrawal of the objection under PCT Article 33(2).

The Examiner further maintains that claims 1-72 are anticipated by Dower *et al.* (WO 93/06121). The Dower publication primarily teaches a method for synthesizing certain types of combinatorial libraries.

Applicants respectfully traverse the objection, and point out that the present invention is different from that of the cited reference. Dower *et al.* disclose a method of identifying compounds of interest using identifier tags to record sequencing information. Like Still and Ohlmeyer, the methods of Dower for reading the tag sequences of beads in the library all require isolation of the beads before the sequence can be determined, and do not allow *in-situ* interrogation as provided by the present invention.

In one embodiment, Dower *et al.* teach how to use synthetic deoxyribonucleotides as identifier tags, i.e., by attaching an oligonucleotide sequence to a bead which can then b cleaved and sequenced using standard PCR amplification technology. In Example 2 (p.36 et seq.), Dower *et al.* provide a method of identifying a priorly synthesized sequence using an oligonucleotide tag which must be cleaved and analyzed (e.g. by PCR amplification techniques).

In another embodiment, Dower *et al.* provide identifier tags which can be made of a set of light-addressable compounds such as fluorophores. Dower photobleaches the tags, thereby altering their spectral features and encoding sequence information (p.20). In Example 1 (p.32 et seq.), Dower *et al.* provide a method of staining previously synthesized sequences with fluorescent dyes. This is not true binary encoding, but merely a means of identifying the known sequence of a compound selected by an activity assay. Dower mentions fluorescer tags that can be "machine readable" at p.20, line 35, but it is not clear from the disclosure exactly what was intended by this expression. As Dower never describes or explains how to read "machine readible" tags, applicants maintain that the reference is not enabled, and is therefore invalid as prior art for this teaching. Since applicants are the first to reduce to practice an *in-situ* method of interrogation, one of ordinary skill in the art would not know how to use the invention without specific instruction. Thus, Dower fails to describe an invention relating to such tags.

While Dower *et al.* provide a method for using fluorophore tags for recording information about reaction steps, no method is disclosed for decoding a bead's sequence of reaction steps by direct *in-situ* interrogation. Rather, Dower *et al.* provide a method in which fluorophores are installed on each bead in the library prior to any reaction steps, and are selectively photobleached at different steps, resulting in a coded bead which must be cleaved and then analyzed. See Dower at 20. There is no disclosure of *in-situ* optical interrogation for identification of the sequence of a bead as taught by the present

disclosure. Because the element of direct *in-situ* interrogation is absent from the method of Dower *et al.*, the present invention is clearly different from that of Dower *et al.* Thus, the invention which Dower *et al.* has put into the possession of the public is fundamentally different from applicants' *in-situ* optical interrogation method.

In particular claims, it is even more evident that applicants' invention is differentiated from the prior art. For example, claims 17 and 56 of the present invention teach the additional limitation that emission intensity of a fluorophore used as a tag is distinguished by adjusting the ratio of relative quantities of each fluorophore. This limitation is absent from the disclosure of Dower *et al.* Similarly, Dower *et al.* do not disclose use of any of the specific dyes recited in claims 19-21 and 58-60 of the present invention. Also absent from the disclosure of Dower *et al.* is the collection of fluorescence data from multiple solid supports using multi-spectral imaging methods as set forth in pending claims 23 and 55. Furthermore, Dower *et al.* do not disclose the methods of spectral fluorescence data collection of applicants' claims 25 and 62, or the apparatus elements of claims 26-29 and 63-66 used in conjunction with the methods of claims 25 and 62, respectively, including, for example, formation of a static or dynamic planar array and use of a sandwich flow cell. In addition, Dower *et al.* do not provide the apparatus of applicants' claims 36 and 72 for identifying a compound having a selected property of interest in a library of compounds, as Dower does not disclose such elements as an electrode and an electrolyte solution having an interface between them, an electric field generator, and an illuminating source for controlling bead motion in an array.

Accordingly, applicants maintain that Dower *et al.* do not anticipate the invention of claims 1-72, and respectfully request withdrawal of the objection under PCT Article 33(2).

OBJECTIONS UNDER PCT ARTICLE 6

The Examiner maintains that claims 1-72 lack clarity under PCT Article 6 because the recitation of the term "optionally" makes the claims indefinite.

The Examiner alleges that the term "optionally" renders the present claims indefinite apparently because it is an alternative expression. According to M.P.E.P. §2173.05(h), however, "[a]lternative expressions are permitted if they present no uncertainty or ambiguity with respect to the question of scope or clarity of the claims." Use of the term "optionally" is specifically dealt with in M.P.E.P. §2173.05(h)(III), which cites Ex parte Cordova, 10 USPQ2d 1949 (Bd. Pat. App. & Inter. 1989), a copy of which is provided herewith as Exhibit B. In Cordova, it was held that the term "optionally" in the context of that application meant that a certain acid may or may not be employed in the claimed invention, and did not obfuscate the subject matter claimed as the invention, thus the claims should not be rejected.

Applicants submit that usage of the term "optionally" in the claims of the present invention is similar to that in Cordova, as the term is merely intended to indicate that the recited action or circumstance comprises a possible embodiment. For instance, in claim 1, step (b), "optionally protected" indicates that the component may be protected or unprotected. Clearly, the alternatives are limited and do not make the claim ambiguous or unclear. One of ordinary skill in the art would understand the intended meaning of "optionally" in the context in which it is used in the original claims. Without conceding the correctness of the stated ground for objection, and merely in the interest of advancing the prosecution of the subject application, applicants herein amend claims 1, 6, 7, 9, 11, 36, 37, 42, 43, 45, 48, 52, and 72, to explicitly state the intended usage of the word "optionally". Support for these changes is found in the original claims 1, 6, 7, 9, 11, 36, 37, 42, 43, 45, 48, 52, and 72 as filed.

BODIPY Succinimidyl Esters

Molecular Probes offers a wide selection of amine-reactive BODIPY dyes (Table 1.1), including succinimidyl esters of several BODIPY propionic acids and one BODIPY pentanoic acid. In addition, we have introduced the reactive succinimidyl esters of:

- BODIPY FL-X (D-6102)
- BODIPY TMR-X (D-6117)
- BODIPY TR-X (D-6116)
- BODIPY 630/650-X (D-10000)
- BODIPY 650/665-X (D-10001)

These reactive dyes contain an additional seven-atom aminohexanoyl spacer ("X") between the fluorophore and the succinimidyl ester group. This spacer helps to separate the fluorophore from its point of attachment, potentially reducing the interaction of the fluorophore with the biomolecule to which it is conjugated and making it more accessible to secondary detection reagents such as anti-dye antibodies. REF For amplifying BODIPY FL's signal or converting it into an electron-dense signal, we offer an unlabeled anti–BODIPY FL polyclonal antibody (A-5770, see Section 7.3). This antibody crossreacts with other BODIPY dyes, but not with other fluorophores, and therefore should not be used for simultaneous detection of more than one dye based on the BODIPY fluorophore.

The BODIPY propionic acid succinimidyl esters (D-2184, D-2187, D-2191, D-2219, D-2222, D-2225, D-2228, D-6180) and pentanoic acid succinimidyl ester (BODIPY FL C_5, D-6184) are particularly useful for preparing conjugates of peptides, nucleotides, drugs, toxins, sphingolipids and other low molecular weight ligands that contain aliphatic amines. Our new BODIPY 630/650-X and BODIPY 650/665-X succinimidyl esters (D-10000, D-10001) are brightly fluorescent when conjugated to nucleotides and oligonucleotides and can be excited by near-infrared excitation sources. Several probes for receptors and ion channels are already available from Molecular Probes (see Chapter 17 and Chapter 18), and BODIPY dye–labeled nucleotides are described in Section 8.2.

Exhibit F - Substituted Chemical Names or Structures

Amersham Pharmacia Biotech:

Cy2:
3-(ε-carboxypentyl)-3'-ethyl-oxacarbocyanine-6,6'-disulfonic acid

Cy3:
1-(ε-carboxypentyl)-1'-ethyl-3,3,3',3'-tetramethylindocarbocyanine-5,5'-disulfonic acid

Cy3.5:
1-(ε-carboxypentyl)-1'-ethyl-3,3,3',3'-tetramethyl-3H-benz(e)indocarbocyanine-5,5',7,7'-tetrasulfonic acid

Cy5:
1-(ε-carboxypentyl)-1'-ethyl-3,3,3',3'-tetramethylindocarbocyanine-5,5'-disulfonic acid

Cy5.5:
1-(ε-carboxypentyl)-1'-ethyl-3,3,3',3'-tetramethyl-3H-benz(e)indodicarbocyanine-5,5',7,7'-tetrasulfonic acid

Cy7:
1-(ε-carboxypentyl)-1'-ethyl-3,3,3',3'-tetramethylindotricarbocyanine-5,5'-disulfonic acid

Molecular Probes, Inc:

BODIPY FL-X:
6-((4,4-difluoro-5,7-dimethyl- 4-bora-3a,4a-diaza-s-indacene-3-propionyl)amino)hexanoic acid

BODIPY R6G-X:
6-((4,4-difluoro-5-phenyl- 4-bora-3a,4a-diaza-s-indacene- 3-propionyl)amino)hexanoic acid

BODIPY TMR-X:
6-((4,4-difluoro-1,3-dimethyl- 5-(4-methoxyphenyl)-4-bora-3a,4a-diaza-s-indacene-2-propionyl) amino)hexanoic acid

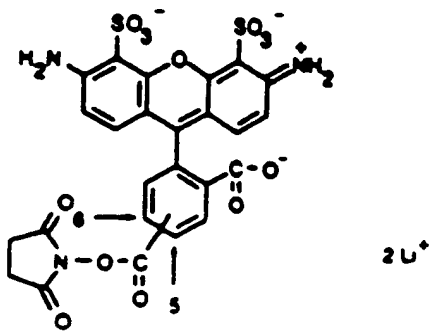
BODIPY TR-X:
6-(((4-(4,4-difluoro-5-(2- thienyl)-4-bora-3a,4a-diaza- s-indacene-3-yl)phenoxy)acetyl) amino)hexanoic acid

BODIPY 630/650-X:
6-(((4,4-difluoro-5-(2-thienyl) -4-bora-3a,4a-diaza-s-indacene-3-yl)styryloxy)acetyl) aminohexanoic acid

BODIPY 650/665-X:
6-(((4,4-difluoro-5-(2-pyrrolyl) -4-bora-3a,4a-diaza-s-indacene-3-yl)styryloxy)acetyl) aminohexanoic acid

For the following dyes, Molecular Probes, Inc. has not given chemical names. Their structures are as follows:

Alexa 488:



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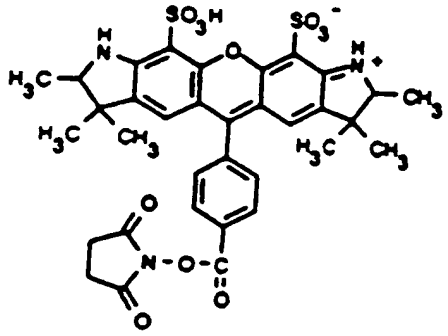

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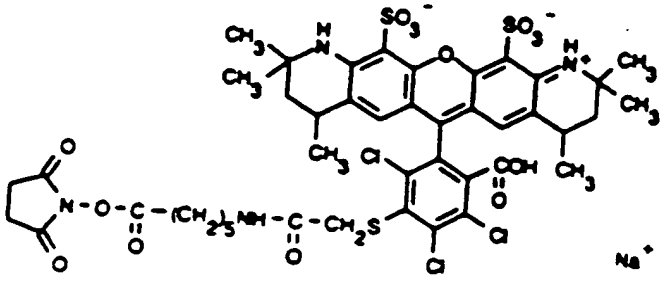

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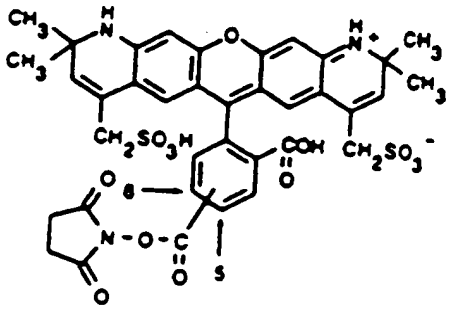
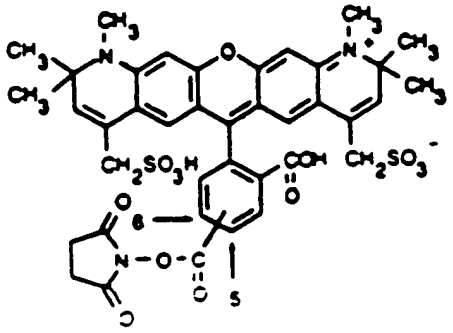


Alexa 594:



The Examiner further maintains that claims 1-72 lack clarity under PCT Article 6 because the recitation of the term "may be" makes the claims indefinite. One of ordinary skill in the art would understand that the term "may be" means "is" in the context in which it is used. Thus, without conceding the correctness of the stated ground for objection and merely in the interest of advancing the prosecution of the subject application, applicants herein amend claims 1, 36, 37, 45, and 72 to substitute "is" for "may be".

Claims 19, 20, 21, and 58-60 are said to lack clarity under PCT Article 6 because the recitation of trademarks in those claims makes them indefinite. In response, applicants respectfully traverse the objection, and submit that the present use of trademarks falls under an exception to the general rule concerning trademarks and tradenames. Trademarks in patent claims are objectionable where a product recited by a claim which is only referred to by its trademark may be changed by the manufacturer. Ex parte Bickell, 122 U.S.P.Q. 27, 28 (Pat. Off. Bd. App. 1957) (attached hereto as Exhibit C) ("[a] manufacturer may arbitrarily alter [the composition of a compound] and thus leave the public or anyone later practicing the invention without sufficient information to carry it out."). In Ex parte Stephens, 71 U.S.P.Q. 304, 305-306 (Pat. Off. Bd. App. 1945) (attached hereto as Exhibit D) rejection on these grounds was reversed to allow the use of a trademark when a method for preparing the product was given, and in Ex parte Canter, 70 U.S.P.Q. 372 (Pat. Off. Bd. App. 1946) (attached hereto as Exhibit E) rejection on these grounds was reversed to allow the use of trademarks when characteristics of the product were defined in the claim specification.

The trademarks objected to in the 28 April 1999 Written Opinion are all names for chemical dyes. These dyes are commonly referred to by their trademark names in practice because their chemical names and structures are so complex as to make generic reference to them impractical. Furthermore, it is important to note that the trademark is modified by a number to refer to specific chemical dyes, and the mark owner has thereby uniquely

identified each dye product. Thus, in this case, the trademarks are specific indicators of structure, and not merely source. Accordingly, applicants submit that the trademarks recited by the pending claims fall within the above-noted common-law exception, and are therefore not objectionable under PCT Article 6.

In the alternative, however, in order to expedite the prosecution of the subject application, applicants herein amend claims 19, 20, 21, and 58-60 to include the actual chemical names, or the chemical structures where chemical names are unavailable, for the dyes referred to by their trademark names in the original application. A list of dyes referred to in the original application by their trademarked names and their corresponding substituted chemical names or structures is attached hereto as Exhibit F.

Claims 20 and 59 in the original application contained a typographical error in one of the dye names. BODIPY 650/655-X™ should read BODIPY 650/665-X™. No dye exists or has ever existed by the former name. Information verifying this fact from the web page of the manufacturer of BODIPY™ dyes, Molecular Probes, Inc., including a list of the available BODIPY dyes, is attached hereto as Exhibit G.

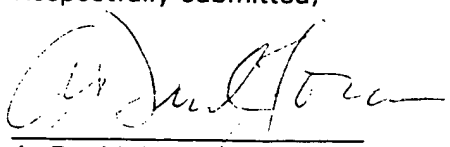
Applicants maintain that claims 19, 20, 21, and 58-60, as amended, comply with the requirements of PCT Article 6.

In view of the preceding remarks, applicants respectfully request that the Examiner reconsider and withdraw the objections to the subject PCT International Application set forth in the 28 April 1999 Written Opinion.

If a telephone interview would be of assistance in advancing the prosecution of the subject International Application, applicants' undersigned attorney invites the Examiner to telephone him at the number provided.

No fee is deemed necessary in connection with the filing of this Amendment. If any fee is required, authorization is hereby granted to charge the amount of such fee to Deposit Account No. 50-0540.

Respectfully submitted,



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abandoned, or otherwise disposed of, without having been laid open to public inspection and without leaving any rights outstanding, and has not served, nor thereafter shall serve, as a basis for claiming a right of priority.

(d) Applications for inventors certificates filed in a foreign country in which applicants have a right to apply, at their discretion, either for a patent or for an inventors certificate shall be treated in this country in the same manner and have the same effect for purpose of the right of priority under this section as applications for patents, subject to the same conditions and requirements of this section as apply to applications for patents, provided such applicants are entitled to the benefits of the Stockholm Revision of the Paris Convention at the time of such filing.

(e)

(1) An application for patent filed under section 111(a) or section 363 of this title for an invention disclosed in the manner provided by the first paragraph of section 112 of this title in a provisional application filed under section 111(b) of this title, by an inventor or inventors named in the provisional application, shall have the same effect, as to such invention, as though filed on the date of the provisional application filed under section 111(b) of this title, if the application for patent filed under section 111(a) or section 363 of this title is filed not later than 12 months after the date on which the provisional application was filed and if it contains or is amended to contain a specific reference to the provisional application.

(2) A provisional application filed under section 111(b) of this title may not be relied upon in any proceeding in the Patent and Trademark Office unless the fee set forth in subparagraph (A) or (C) of section 41(a)(1) of this title has been paid.

(3) If the day that is 12 months after the filing date of a provisional application falls on a Saturday, Sunday, or Federal holiday within the District of Columbia, the period of pendency of the provisional application shall be extended to the next succeeding secular or business day.

(f) Applications for plant breeder s rights filed in a WTO member country (or in a foreign UPOV Contracting Party) shall have the same effect for the purpose of the right of priority under subsections (a) through (c) of this section as applications for patents, subject to the same conditions and requirements of this section as apply to applications for patents.

(g) As used in this section

(1) the term WTO member country has the same meaning as the term is defined in section 104(b)(2) of this title; and

(2) the term UPOV Contracting Party means a member of the International Convention for the Protection of New Varieties of Plants.

(Amended Oct. 3, 1961, Public Law 87-333, sec. 1, 75 Stat. 748; July 28, 1972, Public Law 92-358, sec. 1, 86 Stat. 501; Jan. 2, 1975, Public Law 93-596, sec. 1, 88 Stat. 1949; Dec. 8, 1994, Public Law 103-465, sec. 532(b)(1), 108 Stat. 4985; Nov. 29, 1999, Public Law 106-113, sec. 1000(a)(9), S. 1948 secs. 4801, 4802, 113 Stat. 1501.)

35 U.S.C. 120 Benefit of earlier filing date in the United States.

An application for patent for an invention disclosed in the manner provided by the first paragraph of section 112 of this title in an application previously filed in the United States, or as provided by section 363 of this title, which is filed by an inventor or inventors named in the previously filed application shall have the same effect, as to such invention, as though filed on the date of the prior application, if filed before the patenting or abandonment of or termination of proceedings on the first application or on an application similarly entitled to the benefit of the filing date of the first application and if it contains or is amended to contain a specific reference to the earlier filed application.

(Amended Nov. 14, 1975, Public Law 94-131, sec. 9, 89 Stat. 691; Nov. 8, 1984, Public Law 98-622, sec. 104(b), 98 Stat. 3385.)

Ex parte BICKELL et al.

(BdPatApp&Int)
122 USPQ 27

Opinions dated May 29 and July 15, 1957
U.S. Patent and Trademark Office, Board of Patent Appeals and Interferences

Headnotes

- **PATENTS**

1. Specification—Reference to other disclosures (§ 62.5)

Applicants cannot rely on disclosure of patent, subsequent both in filing and issue to applicants' filing date, for purposes of identifying materials referred to in applicants' specification.

2. Specification—Sufficiency of disclosure (§ 62.7)

Applicants' contention, that naming of trademarked resin in conjunction with disclosure of class generically should be sufficient to enable persons skilled in art to practice process, is no answer to Patent Office Rule 71(b) which requires applicant to describe completely a specific embodiment and best mode contemplated by inventor of carrying out invention; required complete description of specific embodiment is not satisfied if critical component of process is not properly identified; naming of class will not serve as specific embodiment; designation of compound solely by arbitrary trade name without more is not proper identification of compound.

Case History and Disposition:

Appeal from Division 25.

Application for patent of Leslie K. Bickell et al., Serial No. 266,062. From decision rejecting claims 14, 17, 18, and 23, applicants appeal. Appeal dismissed as to claims 14 and 17; affirmed as to claims 18 and 23.

Attorneys:

BAILEY, STEPHENS & HUETTIG, Washington, D. C., for applicants.

Judge:

Before WOLFFE and ASP, Examiners in Chief, and DRACOPOULOS, Acting Examiner in Chief.

Opinion Text

Opinion By:

ASP, Examiner in Chief.

This is an appeal from the action of the examiner finally rejecting claims 14, 17, 18 and 23. An amendment was filed on January 13, 1956 cancelling claims 14 and 17. The appeal as to these claims will be dismissed.

Claim 18 is reproduced as illustrative.

> 18. In the soda base sulphite wood pulping process, a method for recovering sodium values from the waste liquor in a form suitable for re-use in the said sulphite process, comprising the steps of concentrating the waste liquor, burning and smelting the concentrate under reducing conditions to produce a smelt in which the sodium is predominantly in the form of sodium sulphide, dissolving sodium compounds of the smelt to form an aqueous solution having a pH greater than about 6, adsorbing sodium from the smelt solution with a synthetic resin base carboxylic acid ion exchange material in the hydrogen form and regenerating said ion exchanges material with a sulphurous acid solution having a pH less than about 4 to produce a solution of sodium bisulphite and sulphurous acid free from excess impurities.

The claims are not rejected on prior art but reference has been made to:

D'Alelio, 2,340,111, January 25, 1944.

Kasper et al., 2,778,714, January 22, 1957.

Condensed Chemical Dictionary, 4th Ed.

The invention is directed to a recovery process for soda base sulfite liquor. The process is sufficiently described by the copied claim. The essential novelty lies in the use of a cation exchange material of a particular class, namely, a synthetic resin base carboxylic acid ion

exchange material in the hydrogen form.

Claims 18 and 23 stand rejected as based on an insufficient disclosure by reason of failure to comply with Rule 71(b) which requires that a specific embodiment of the invention be described completely in the specification. The asserted failure resides in lack of proper identification of a specific ion exchange material. The disclosure in issue is found on page 5, lines 5 through 12, which names generally carboxylic acid ion exchange materials

in hydrogen form and, as a specific example, states that a suitable ion exchange material is Amberlite IRC-50 available from the Rohm and Haas Company. Appellants by amendment inserted a reference to the Condensed Chemical Dictionary, 4th Ed. in support of the proposition that this is a carboxylic acid type cation exchanger. However, there is no further identification of this trademarked material, hence in accordance with the Manual of Patent Examining Procedure 608.01 (v), the examiner held there was inadequate identification of a specific ion exchange material. The examiner's position may simply be stated as being that disclosure of a class of materials and one of the members of that class by a trade name is insufficient to meet the requirements of Rule 71(b).

[1][2]Appellants concede that they have not identified any specific ion exchange material by chemical formula or name (last paragraph page 5 of brief). They also admit (bottom of page 6 of the brief) that not all ion exchange materials will work. They have referred to the D'Alelio Patent 2,340,111 as describing procedures for making Amberlite IRC-50 and other specific carboxylic acid type ion exchange materials. At the hearing they also offered the Kasper et al. Patent 2,778,714 which, in column 6, discloses a number of synthetic cation exchange resins including those of the D'Alelio patent and states that a typical resin of this character is Amberlite IRC-50. However, neither Kasper et al. nor appellants identify this particular resin with any specific example in the D'Alelio patent. Further, in view of the fact that the Kasper et al. patent is subsequent both in filing and issue to appellants' filing date, they would not be entitled to rely on its disclosure for purposes of identifying any of these materials. Ex. parte Moersch, 104 USPQ 122 . Appellants' position apparently is that naming the trademarked resin in conjunction with a disclosure of the class generically, should be sufficient to enable persons skilled in the art to practice the process.

It may well be that skilled chemists might select or even prepare resin base carboxylic acid ion exchange material suitable for use in this process, particularly in the light of the D'Alelio patent. However, this is not the issue and appellants' contention constitutes no answer to Rule 71(b) which requires an applicant for patent to describe completely a specific embodiment and the best mode contemplated by the inventor of carrying out this invention. A complete description of a specific embodiment as required by this rule is obviously not satisfied if a critical component of a process is not properly identified.

Appellants have conceded that the specification fails to identify any specific ion exchange resin by chemical formula or proper chemical name. Nor have they disclosed a specific process

example of making a particular ion exchange material. The reference to the Condensed Chemical Dictionary adds little to what was in the original disclosure. As previously noted, appellants have not identified Amberlite IRC-50 with any of the D'Alelio resins; or in the alternative disclosed the process of making this material.

It is believed self-evident that the naming of a class will not serve as a specific embodiment. The designation of a compound solely by its arbitrary trade name without more is not a proper identification of that compound under the patent statutes. Lamm et al. v. Watson, 108 USPQ 203 . A manufacturer may arbitrarily alter such composition and thus leave the public or anyone later practicing the invention without sufficient information to carry it out. Clearly, therefore, there has been a failure on the part of appellants to completely disclose a specific embodiment as required by Rule 71(b) and the rejection of the examiner must be sustained.

The appeal is dismissed as to claims 14 and 17.

The decision of the examiner is affirmed.

July 15, 1957

On Petition for Reconsideration

Appellants request reconsideration of our decision of May 29, 1957, affirming the action of the examiner refusing the claims.

The petition presents no points which were not already considered by us at the time we made our decision. We were aware of the recent Diffley (113 USPQ 352) and Cross (113 USPQ 547) decisions by this Board but as properly noted in Ex parte Diffley the Rule 71(b) require

ments must be determined by the circumstances of each case. In the latter case it should be noted inter alia that the agent in question (alkyl aryl sulfonate) remained inert during the process. In Ex parte Cross we found the applicant's disclosure of alkyl groups of 12-14 C atoms corresponding to fatty alcohols to be tantamount to a disclosure of their normal origin, namely palm kernel or coconut oil.

The naming of a class of materials (1st par page 2 of the petition) is of no aid in meeting the requirements of Rule 71(b). With reference to the difficulty of obtaining information on the trademarked resin IRC-50, it was still open to appellants to make a resin in accordance with the known procedures and to use it in a specific example; or simpler yet, to use one of the resins prepared according to a specific example of the prior art. In this case appellants have asserted they may use resins made as in D'Alelio 2,340,111 hence it might have been sufficient had they identified by example one of these as applicable to their purpose. This they did not do.

The petition has been considered but is denied in respect to making any change in our

decision.

- End of Case -

Ex parte STEPHENS

(BdPatApp&Int)
71 USPQ 304

Patent issued Dec. 3, 1946
Opinion dated June 15, 1945
U.S. Patent and Trademark Office, Board of Patent Appeals and Interferences

Headnotes

PATENTS

1. Claims--Broad or narrow--Chemical cases

Claims--Indefinite

Method claims are not too broad or indefinite in use of "a tacky rubber" or "a rubber material"; specification states that natural or synthetic rubber may be used; although examiner holds that synthetic rubber has not attained definite meaning in art, Board's conclusion is that, since merely physical properties of rubber or rubber-like ingredient are involved, terms are sufficiently definite; this feature of compound is in detail not critical and, if applicant chooses to draw claims of such scope, liable to greater attack on prior art, it is permissible in view of operative examples given.

2. Claims--Miscellaneous objections

Claims are not rejected because of inclusion of ingredient identified by trade name, since specification does not rely on trade name only, but states mode of preparing substance.

3. Claims--Broad or narrow--Chemical cases

Claims--Indefinite

Claim is not too broad and indefinite because of inclusion of "a hydrocarbon resin substantially of the nature of a Nevillite resin as herein"; since applicant is first to prepare this type of mixture, he is entitled to claims of such scope; it is merely question of scope of claim, not one of difficulty in identifying equivalent agents; principle of method is simple.

4. Patentability -- Anticipation -- United States patents

Broad claim is allowed instant sole applicant where he had been continually attempting to secure broad claims since before filing date of joint patent to himself and others and since it was conceded by common assignee that joint inventors were not entitled to broad claim.

Particular patents--Adhesive

2,411,905, Stephens, Water Dispersed Rubber Adhesive, claims 8, 9, 11, 19 to 22, and 28 of application allowed.

Case History and Disposition:

Page 304

Appeal from Division 50.

Application for patent of Henry N. Stephens, Serial No. 406,397, filed Aug. 11, 1941. From decision rejecting claims 8, 9, 11, 19 to 26, and 28, applicant appeals. Appeal dismissed as to claims 23 to 26; reversed as to remaining claims.

Attorneys:

CARPENTER, ABBOTT, COULTER & KINNEY, St. Paul, Minn., for applicant.

Judge:

Before REDROW, MORGAN and PORTER, Examiners in Chief.

Opinion Text

Opinion By:

REDROW, Examiner in Chief.

This is an appeal from the final rejection of Claims 8, 9, 11, 19 to 26 and 28. Appeal as to Claims 23, 24, 25 and 26 is withdrawn.

Claims 8, 11 and 21 are illustrative.

8. The method of making a water-disposed rubber adhesive which includes combining a tacky rubber-containing material with a soap-forming acid by mixing at elevated temperatures of at least about 190° F., then

adding water to the mix to the extent of 15-30 percent by weight of the rubber composition and mixing to form a uniform plastic dispersion of the water-in-oil type, and then, while maintaining the mix at a temperature of the general order of 145° F., adding alkali to the mix to render it alkaline and to form soap, whereupon, with continued kneading and mixing, inversion of phase of the dispersion takes place and soap is concurrently formed in situ.

11. A method of making a waterdispersed rubber-containing composition which comprises intimately intermixing a rubber material with a soap-forming acid by mixing at elevated temperatures of at least approximately 190° F., but below about 250° F.; combining with such mix a minor proportion of water in the substantial absence of alkali and soap, the amount of water introduced into the mix being sufficient, but not greatly in excess of that amount which is sufficient, to permit inversion of the dispersion upon the addition of alkali and continued mixing and kneading, and said amount of water being approximately within the range of fifteen to thirty percent by weight of the total water necessary to give a sprayable viscosity in the final oil-in-water type dispersion; and, subsequent to the addition of water and while maintaining the temperature of the mix at a superatmospheric temperature sufficiently low to avoid the production of a coarse finished emulsion, the last mentioned temperature being of the order of approximately 145° F., adding potassium hydroxide to the mix in amount sufficient so that the resulting pH of the mix is substantially in excess of seven, whereupon a smooth inversion of phase takes place, the aqueous liquid becoming the continuous phase and the rubber being dispersed therein, and a smooth, fine dispersion is attained; and then diluting with the remaining 70-85 percent of the total water to give a final oil-in-water type dispersion of a sprayable viscosity.

21. The method of making an oil-in-water type dispersion which, upon drying, will yield a light colored, relatively clear, tacky, pressure-sensitive film, which comprises blending together rubber and a resinous material including ester gum at a temperature above about 190° F. to form a uniform plastic mass; incorporating water in such mass by mixing and mastication to form a uniform dispersion of the water-in-oil type, while

gradually reducing the temperature of said mass, said water being incorporated in sufficient amount but not greatly in excess of that amount which is sufficient to permit subsequent inversion of phase solely upon bringing a dispersing agent into uniformly disseminated contact with said water-in-oil dispersion; and then, while maintaining said water-in-oil dispersion within a restricted temperature range approximating 145° F., bringing a dispersing agent into uniformly disseminated contact therewith, so that inversion of phase takes place forthwith.

The following reference is relied upon:

Livermore et al., 2,310,972, Feb. 16, 1943

[1] Claims 8, 9 and 11 have been rejected as being too broad and indefinite in the terms "a tacky rubber" or "a rubber material".

The specification states that natural rubber or synthetic rubber may be used. The examiner holds that synthetic rubber has not attained a definite meaning in the art.

On careful consideration it is our conclusion that since this is a situation where merely the physical properties of the rubber or rubber-like ingredient are involved, that the terms of the claims are sufficiently definite. It appears that this feature of the compound is in detail not critical and if applicant chooses to draw claims of that scope, liable to greater attack on prior art, it is permissible, in view of the operative examples given. We believe the examples sufficient to warrant that scope of claim.

Like conclusions apply to the rejection of Claims 19 and 20. These claims have been rejected as broader than the disclosure. This relates to the plastic tack producing ingredient. Applicant names several suitable agents of this nature such as natural and artificial resins, rosin ester gums, artificial neutral resin such as specifically "Nevillite" defined as to mode of preparing. The only requirement is that the agent be of tacky nature and physically combinable with higher fatty acids. We consider the examples given to be sufficient.

[2][3] Claims 22 and 28 have been rejected as indefinite and too broad because of the ingredient "Nevillite" and further because the name is a trade name. The specification does not rely on the trade name only, but states the mode of preparing the substance. This is held to be sufficient answer to both grounds as well as the supplemental but

similar rejection applied to claim 22 namely, that the expression

"a hydrocarbon resin substantially of the nature of a Nevillite resin as herein"

is too broad and indefinite. Since applicant is the first to prepare this type of mixture so far as the record shows we believe he is entitled to claims of such scope. It is merely a question of scope of claim not one of difficulty in identifying equivalent agents. The principle of the method involved

here appears relatively simple.

Claim 21 has been rejected as unpatentable over Livermore et al. This reference owned by common assignee relates to a particular species of this type of compound. All of the claims of the patent are limited to containing "asphalt" or "bitumen". This component is not disclosed in this application. Claim 21 appears singled out because of including specifically the term "ester gum" which is also named in claim 4 of the patent, but still with "asphalt". Ester gum of the patent may be "Nevillite" or wood rosin the same as in this case.

Applicant argues that the asphalt ingredient makes a line of division between the two cases and besides that applicant through his intermediate case Serial No. 199,189 has continuity as to broad claims to date of March 31, 1938, earlier than filing date of December 27, 1938, of the patent application.

[4] We conclude that the ingredient asphalt forms a sufficient and material line of division between claim 4 of the patent and Claim 21 of this case. It is also contended that the patent is a joint case of applicant with two others while this application is a sole case, and that the broader invention is applicant's and not a joint invention. In such case it would appear that since applicant has been continually attempting to secure broad claims since before the joint patent filing date and since it was known and conceded by common assignee that the joint inventors were not entitled to a broad claim that applicant is entitled to it.

The examiner's decision is reversed as to Claims 8, 9, 11, 19, 20, 21, 22 and 28. The appeal as to Claims 23, 24, 25 and 26 is dismissed.

- End of Case -

Ex parte CANTER AND GEYER

(BdPatApp&Int)
70 USPQ 372

Patent issued July 23, 1946
Opinion dated Feb. 28, 1946
U.S. Patent and Trademark Office, Board of Patent Appeals and Interferences

Headnotes

PATENTS

1. Claims--Miscellaneous objections

Use of trade name in claims is not objectionable, since characteristics of material are given in specification.

Particular patents--Coating Material

2,404,431, Canter and Geyer, Water Repellent Coating Material, claims 2 to 15 of application allowed.

Case History and Disposition:

Appeal from Division 44.

Application for patent of Ralph Canter and Harvey D. Geyer, Serial No. 404,694, filed July

30, 1941. From decision rejecting claims 2 to 15, applicants appeal. Reversed.

Attorneys:

SPENCER, HARDMAN & FEHR, Dayton, Ohio, for applicant.

Judge:

Before SHAFFER, PORTER and TAYLOR, Examiners in Chief.

Opinion Text

Opinion By:

PORTER, Examiner in Chief.

This is an appeal from the action of the Examiner finally rejecting claims 2 to 15, inclusive.

Claim 2 is illustrative and reads as follows:

> 2. A freezing device comprising in combination a container member for holding a liquid to be frozen, and a partitioning member for dividing a frozen content into blocks, at least one of said members being coated with a water repellent coating composition polymerized after application to said member for hardening the coating and making it an adherent to the member, said coating consisting of a urea formaldehyde resin and alkyd resin in quantities of from 50% to 90% by weight of the composition together with a high melting point wax which includes a wax that has a melting point in the neighborhood of 180°F., together with a wax which has a melting point above 140°F., said waxes making up the remainder of the coating composition.

The references relied upon are:

Hill et al., 1,877,130, Sept. 13, 1932,

Warp, 2,141,575, Dec. 27, 1938,

Hardy 2,155,592, Apr. 25, 1939.

Claims 2 to 6, inclusive, are drawn to an ice tray, a member of which is coated with resin-wax compositions. Hardy shows that wax and resin mixtures can be similarly used.

It is the position of the examiner that appellants have merely selected the coating composition of Hill et al., and presumably Warp, for the purpose indicated by Hardy. He holds that this selection is not inventive.

Our view is that Warp does not disclose the composition. The Hill et al. patent is used only to show the combined use of alkyd and urea formaldehyde resin and the effect of the latter on the former.

Flower states in his affidavit that appellants' composition is harder than previous compositions but this may be due to the urea resin as indicated by Hill et al. He states that the present composition will bond to metal even if it has not been anodized whereas conventional compositions will not stick to smooth surfaces.

The Fouts affidavit deals with commercial success and may be persuasive in connection with the argument in the brief to the effect that even if the references are combined as is done by the examiner, the claims are still not anticipated.

Claims 7 to 15, inclusive, are not anticipated by Warp and we cannot conclude that the distinctions over Warp are obvious uninventive details.

[1] The trade name, "Stanolind", as used in the claims, is not considered objectionable, the characteristics of this wax having been given in the specification.

The decision of the examiner is reversed.

- End of Case -

Ex parte Cordova

U.S. Patent and Trademark Office, Board of Patent Appeals and Interferences
10 USPQ2d 1949

Decided December 4, 1987, March 18, 1988, and December 16, 1988
No. 87-0298

Headnotes

PATENTS

1. Patent construction -- Claims -- Indefinite and incomplete (§ 125.1313)

Term "optionally" in claims for polyester or polyamide fiber coated with alkyd resin denotes that unsaturated aliphatic carboxylic acid may or may not be employed, and does not obfuscate subject matter claimed as invention, and thus rejection of claims based on ambiguity of such term must be reversed.

2. Patentability/Validity -- Obviousness -- In general (§ 115.0901)

Patent construction -- Claims -- In general (§ 125.1101)

Preambular recitation indicating intended use may impose sufficient structural limitations upon claimed article to differentiate it over prior art, but, in considering applicants' preambular recitations "reinforcing fiber" and "for reinforcing plastic composites," in claims for polyester or

polyamide fiber coated with alkyd resin, issue is not whether one having ordinary skill in art would have found use of prior art's coated fibers to reinforce plastic composites to be prima facie obvious, but whether coated fibers disclosed in prior art would be capable of performing reinforcing function if embedded in plastic material, and, since prior art apparently contemplates wide variety of fibers and since coating composition corresponds to that employed by applicants, factual basis exists upon which to reasonably conclude that coated polyester fibers of prior art are capable of reinforcing some plastic material.

3. Patent construction -- Claims -- Indefinite and incomplete (§ 125.1313)

Issues arising under 35 USC 112, second paragraph, must be decided on case-by-case basis, and situations may arise in which expressions "such as" and "particularly" render claim indefinite as to whether such expressions introduce exemplary or limiting detail, but use of term "optionally" is akin to expressions such as "up to" and "0 to ..." and would not normally render claims indefinite.

Case History and Disposition:

Appeal from rejection of claims (Paul J. Thibodeau, primary examiner).

Application for patent filed by David S. Cordova, David R. Coffin, Stanley D. Lazarus, and Steven A. Young, serial no. 631,978, on July 18, 1984. From final rejection of claims, applicants appeal. Affirmed in part and reversed in part.

Attorneys:

William H. Thrower and Virginia S. Andrews, Petersburg, Va., for appellants.

Judge:

Before Serota, chairman, and Steiner and Skinner, examiners-in-chiefs.

Opinion Text

Opinion By:

Steiner, examiner-in-chief.

This is an appeal from the final rejection of claims 1 through 4 and 7 through 20. Claims 21 through 31, the only other claims remaining in the application, stand withdrawn pursuant to the provisions of 37 CFR 1.142(b).

The subject matter on appeal is directed to a polyester or polyamide fiber coated with an alkyd resin.

Claim 1 is illustrative and reads as follows:

> 1. A high tenacity reinforcing fiber selected from the group consisting of polyester, aliphatic polyamide, and combinations thereof, for reinforcing plastic composites, said fiber being coated with a composition comprising an aqueous solution of carboxyl-terminated, oil-free alkyd resin which is the reaction product of at least one aliphatic glycol containing 2 to 12 carbons with a combination of aromatic di- or trifunctional carboxylic acids and, optionally, an unsaturated aliphatic carboxylic acid, said resin having a degree of esterification below the gel point of the resin to enhance stiffness of the fiber for cutting.

The reference relied upon by the examiner is: Login 4,156,073 May 22, 1979

[1] Claims 1, 3, 7, 8, 11, 12 and 15 through 18 stand rejected under the second paragraph of 35 U.S.C. 112 as indefinite. The examiner contends that the use of the term "optionally" is ambiguous, since it is not clear whether the unsaturated aliphatic carboxylic acid is, in fact, encompassed by the claims. The recitation "optionally" denotes that the unsaturated aliphatic carboxylic acid may or may not be employed. It is not apparent, and the examiner has not explained, why the use of such alternative language fails to particularly point out and distinctly claim the subject matter appellants regard as their invention. It is our opinion that the use of the alternative expression "optionally" in the rejected claims does not obfuscate the subject matter appellants regard as their invention. *Ex parte* Head, 214 USPQ 551 (Bd.App. 1981). The examiner's rejection under the second paragraph of 35 U.S.C. 112 is, therefore, reversed.

All of the appealed claims stand rejected under 35 U.S.C. 103 as unpatentable over Login. This rejection is affirmed.

Login discloses polyester fibers, such as polyethylene terephthalate fibers, having applied thereto an alkyd resin which is the reaction product of components embraced by the appealed claims. We note the various polycarboxylic acids and glycols disclosed by Login correspond to those contemplated by appellants and encompassed by several of the dependent claims. We particularly note that the claims are of sufficient scope to embrace the aromatic carboxylic acid component of Login which contains a -SO 3M grouping.

Since Login contemplates the use of "many types of synthetic fibers" (column 6, line 54),

it would appear reasonable to conclude that Login embraces or would have suggested fibers satisfying the requirements of various dependent claims such as claims 16 through 20. Furthermore, it would appear reasonable to conclude that the amount of solids pickup satisfies the requirements of dependent claims 7 through 18. The Patent and Trademark Office does not have the requisite facilities to conduct laboratory testing to ascertain the degree of solids pickup in Login's process. However, since the disclosed process is similar to that claimed, and since the function performed by Login's alkyd resin is similar to that of the appealed claims, *i.e* ., increasing adhesion between the filaments 1 , it would appear reasonable to conclude that the amount of solids pickup in Login's process satisfies the requirements of the above-noted claims. *In re* King, 801 F.2d 1324, 231 USPQ 136 (Fed. Cir. 1986).

[2] We recognize that under certain circumstances a preambular recitation indicating intended use may impose sufficient structural limitations upon a claimed article to differentiate it over a prior art article. See, for example, Kropa v. Robie, 187 F.2d 150, 88 USPQ 478 (CCPA 1951). In the situation before us, the preambular recitations argued by appellants are "reinforcing fiber" and "for reinforcing plastic composites." The issue which arises is not whether one having ordinary skill in the art would have found it *prima facie* obvious to employ Login's coated fibers to reinforce plastic com

posites. Rather, the issue which arises is whether the coated fibers disclosed by Login would be capable of performing a reinforcing function if embedded in plastic material. Since Login apparently contemplates a wide variety of fibers and the coating composition corresponds to that employed by appellants, a factual basis exists upon which to reasonably conclude that Login's coated polyester fibers are capable of reinforcing some plastic material.

Appellants, on page 5 of the principal Brief, argues that

> "the presence of the -SO 3M group required in Login *may or may not* have adverse effects on the fiber claimed by appellants. It cannot be known without testing the Login finish. . . . It is *speculated* that the presence of such a group would have adverse effects and would therefore be outside the scope of the claims. (Emphasis supplied.)

In our opinion, the appealed claims are of sufficient scope to encompass Login's alkyd resin which is produced by reacting, *inter alia* , an aromatic carboxylic acid containing a -SO 3M grouping. Appellants' *speculations* do not persuade us otherwise.

Based upon the foregoing, we agree with the examiner's conclusion that one having ordinary skill in the art would have found the claimed invention *prima facie* obvious. As evidence of nonobviousness, appellants refer to the data which appear in Table 1 on page 10 of the specification to demonstrate that a certain type of textile fiber cannot be employed for effective reinforcement of a particular plastic. We have considered this evidence; however, we do not find it persuasive of nonobviousness.

The data suggest that polyethylene terephthalate fibers conventionally employed in the production of textiles are not as suitable for reinforcing certain plastics as other types of polyethylene terephthalate fibers. However, the appealed claims are drawn to coated fibers which are *generally* capable of reinforcing *unspecified* plastic composites. *Cf. In re* Muchmore, 433 F.2d 824, 167 USPQ 681 (CCPA 1970). The evidence does not suggest that the coated fibers disclosed by Login are incapable of reinforcing some plastic material. *Cf. In re* Johnson, 747 F.2d 1456, 223 USPQ 1260 (Fed. Cir. 1984); *In re* De Blauwe, 736 F.2d 699, 222 USPQ 191 (Fed. Cir. 1984); *In re* Fenn, 639 F.2d 762, 208 USPQ 470 (CCPA 1981).

Upon consideration anew of the evidence of obviousness relied upon by the examiner and weighing such evidence of obviousness against the evidence of nonobviousness relied upon by appellants 2 , it is our judgment that the evidence of obviousness outweighs the evidence of nono-bviousness. We, therefore, agree with the examiner's conclusion that one having ordinary skill in the art would have found the claimed invention as a whole obvious within the meaning of 35 U.S.C. 103.

AFFIRMED

ON REQUEST FOR RECONSIDERATION

March 18, 1988

Appellants request reconsideration of our decision mailed December 4, 1987, in which we affirmed the examiner's rejection of the appealed claims under 35 U.S.C. 103. Appellants point to no error in our affirmance of the examiner's rejection of claims 1, 2 and 19. Appellants, however, seek reconsideration of our affirmance of the examiner's rejection of claims 3, 4, 7 through 18 and 20.

Upon consideration of the arguments advanced, we are persuaded that claims 3, 4, 7 through 18 and 20 exclude the aromatic carboxylic acid component of Login which contains a -SO $_3$M grouping.

We are not persuaded by the examiner's reasoning that one having ordinary skill in the art would have been motivated to eliminate the aromatic carboxylic acid component of Login which contains a -SO 3M grouping, since that component would appear essential for Login's purposes. *In re* Gordon, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984); *In re* Schulpen, 390 F.2d 1009, 157 USPQ 52 (CCPA 1968).

Accordingly, appellants' request is granted and our decision is hereby modified to the extent that the examiner's rejection of claims 3, 4, 7 through 18 and 20 is *reversed* . Our affirmance of the rejection of claims 1, 2 and 19 is unchanged.

GRANTED

UPON REQUEST FOR RECONSIDERATION

D c mber 16, 1988

The examiner requests reconsideration of our decision mailed December 4, 1987, in which we reversed the rejection of claims 1, 3, 7, 8, 11, 12 and 15 through 18 under the second paragraph of 35 U.S.C. 112 as indefinite. We have reconsidered our decision in light of the arguments now advanced; how

ever, we are not persuaded that the examiner's rejection was proper.

It is well settled that the initial burden of establishing a basis for denying patentability to a claimed invention rests upon the examiner. *In re* Fine, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988); *In re* Thorpe, 777 F.2d 695, 227 USPQ 964 (Fed. Cir. 1985); *In re* Piasecki, 745 F.2d 1468, 223 USPQ 785 (Fed. Cir. 1984). In rejecting a claim under the second paragraph of 35 U.S.C. 112, it is incumbent upon the examiner to establish that one having ordinary skill in the art would not have been able to ascertain the scope of protection defined by the claim when read in light of the supporting specification. *In re* Moore, 439 F.2d 1232, 169 USPQ 236 (CCPA 1971); *In re* Hammack, 427 F.2d 1378, 166 USPQ 204 (CCPA 1970). The resolution of this legal question 3 necessarily depends upon the facts of each particular case. Chicago Pneumatic Tool Co. v. Hughes Tool Co., 97 F.2d 945, 38 USPQ 258 (10th Cir. 1938).

In the situation before us, the invention set forth in independent claim 1 is directed to a fiber coated with a composition

> which is the reaction product of at least one aliphatic glycol containing 2 to 12 carbons with a combination of aromatic di- or trifunctional carboxylic acids and, *optionally*, an unsaturated aliphatic carboxylic acid . . . (emphasis supplied).

By its own terms, and when construed in light of the specification (pages 3 through 5), claim 1 encompasses a reaction mixture which contains an unsaturated aliphatic carboxylic acid and a reaction mixture which does not contain an unsaturated aliphatic carboxylic acid. In our opinion, one having ordinary skill in the art would have recognized the scope of protection sought within the meaning of the second paragraph of 35 U.S.C. 112. *In re* Moore, *supra* ; *In re Hammack, supra* .

The examiner argues that the term "optionally," as employed in claim 1, is analogous to "such as" and "particularly" when following a broad limitation. The examiner contends that the precise limits of the claims cannot be determined.

[3] As previously mentioned, issues arising under the second paragraph of 35 U.S.C. 112 must be decided on a case-by-case basis. Situations may arise in which the expressions "such as" and "particularly" render a claim indefinite as to whether such expressions introduce exemplary or limiting detail. However, the use of the term "optionally," as employed in claim 1, is akin to expressions such as "up to" and "0 to. . . ." Such alternative language does not normally render

claims indefinite under the second paragraph of 35 U.S.C. 112. See *Ex parte* Head, 214 USPQ 551 (Bd.App. 1981). Also of interest is *In re* Fisher, 427 F.2d 833, 166 USPQ 18 (CCPA 1970), wherein it was held that the expression "at least," under the particular facts of that case, did not render the claims indefinite.

In summary, we have no doubt that one having ordinary skill in the art would have recognized that the claims encompass reaction mixtures which have an unsaturated aliphatic carboxylic acid and reaction mixtures which do not have an unsaturated aliphatic carboxylic acid. Such an alternative situation does not run afoul of the second paragraph of 35 U.S.C. 112.

The examiner's request is granted to the extent that we have reconsidered our decision; however, it is denied to the extent that it seeks any modification thereof.

DENIED

Footnotes

Footnote 1. Appellants' specification reveals that the alkyd resin enhances interfilament coherency. See, for example, page 1, lines 9 through 14.

Footnote 2. *In re Johnson, supra* .

Footnote 3. Smithkline Diagnostics v. Helena Laboratories, ___ F.2d ___, 8 USPQ2d 1468 (Fed. Cir. 1988).

- End of Case -